

RADIO IN THE HOME

By HENRY M. NEELY



The universe is full of sending and receiving instruments, each with its own range of wave lengths. You pick a string and you create waves that can be heard by the ear.

The reader who is following these lessons in radio may feel that I am over-emphasizing the importance of studying the subject of vibrations and the matter of wave length, but we are living in a universe whose very existence depends upon vibrations, and all of the joys and all of the sorrows of the world might almost be said to narrow themselves down to a question of the wave length of these vibrations.

You wake up on one of these beautiful summer mornings and see a glorious day of sunshine and you are happy. Why? Scientifically it is because of the vibrations of the particular wave lengths which are having their effect upon you.

With no clouds to interfere there are vibrations with wave lengths of from one-thirty-thousandth to one-sixty-thousandth of an inch, and that is pure sunlight—the combination of all the different wavelengths within that range.

You turn your eyes away from the heavens and look across the country and you see green fields and the color of the lush brown earth freshly returned by the plow, or a flash of red or blue or yellow from some bird dashing in and out among the trees or any one of the myriad colors of the flowers.

You do not have to turn any knobs or test any currents or twist any variometers to get the full effect of all this beauty. And yet, as your eye passes from one color to another, nature herself takes care of all this tuning for you and you select the different wave lengths without being conscious of it.

Some day, perhaps, you will be able to work your radio receiver just as quickly and as surely. But the two things placed upon the same dial are light, whether the white light of the sun or the different colors that you see, is entirely a matter of wave length.

You will see in the advertisements of radio receiving sets such qualifying statements as "wave length range 150 to 450 meters." You may wonder why it is necessary to have limits of this kind placed upon the set.

Remember that, in this vibrating universe in which we live, there are waves so long that they will reach a score of miles from one crest to the other, and there are waves so short that the only way that we can measure them is to put them against the shortest wave we actually can measure and calculate how often these waves interfere with each other. It is not too much to say we could have a billion of them on the head of a pin.

It is beyond possibility for any one piece of mechanism to respond to such a limitless range. The radio set responds to waves between one-thirty-thousandth and one-sixty-thousandth of an inch from crest to crest, and these waves, producing what we call light, give the marvelous gift of sight.

There are waves still smaller than these visible ones. We know that they exist because of the photographic plates even though the eye cannot see them. They are what they call the ultra-violet rays.

As we get to the longest waves that can be seen, producing the sensation which we know as the color red, we begin to be conscious of them through another of our senses, and this is the sense of touch. The vibrations cause what we know as heat.

Thus the human body has a separate receiving set for tuning in these waves of different lengths. The sensation which we call sound is also entirely a matter of wave length, but there is this important distinction between sound and light; sound waves are produced by vibrations in the air, and will not go through a vacuum, whereas light waves are produced in a vacuum and will not only go through a vacuum, but through a number of very solid substances, such as glass and quartz.

Just as the different wave lengths in the range which we call light give us the sensation of different colors, so the different wave lengths in the air within the range of sound give us the sensation which we know as pitch.

The high, shrill note of the piccolo or the chirp of a bird is caused by air waves with the shortest wave length. It is possible, by mechanical means, to cause vibrations in the air which the human ear cannot hear. Many naturalists believe that some birds and many insects communicate with each other by means of these short waves to which we cannot tune our own receiving instruments.

The great bass notes of a church organ are produced on long pipes and some organs have pipes as much as thirty-two or even sixty-four feet long, but this is not usual, because very few persons can hear the notes produced by a sixty-four-foot pipe. Yet it is a mathematical certainty that if we make a pipe 128 feet long and use the same mechanical process for creating wave motion in the air in it, we are producing an effect which would be included in the word "sound" if our receiving instruments—the ears—were made to respond to that wave length. But they are not.

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DISGRUNTLED PARISHIONERS PLAN NEW CONGREGATION Split at Barrington, N. J., Caused by Ruling Against Lodges

Disgruntled members of the Presbyterian Church of Barrington, N. J., have announced that a separate service will be held in the Barrington fire house Sunday night, when plans will be presented for the formation of a new congregation.

DREAMLAND ADVENTURES

Teachers Wise By DADDY

Jack and Janet, having vacation fun in the woods, find the birds want to go to school. Janet is teacher, but King Fisher takes her place. She becomes bird size and gets wings by wishing in a fairy ring.

CHAPTER IV The Diving Lesson JANET followed the example of King Fisher and poised over the water with fluttering wings. Looking down, as he directed, she got a surprise. This was that she could see deep into the waters of the river.

Standing on shore, she never had been able to see very far down into the river. Once in a while she had seen the fishes swimming in shallow places, but the deep spots were a mystery to her.

Now she found that from high above she could look right down into these deep spots as if through glass. She could see the fishes playing, resting and hunting food. A crawfish scuttling across the bottom was as plain as though on shore.

"There is food," rattled King Fisher. "There is the very choicest food in plenty." "Chee! I never caught fish," chirped Cocky Robin.

"Then it is time you were going to school," rattled King Fisher. "Watch me and I'll show you how to do it." Down below was Johnny Minnow playing with his sister Minnie Minnow. They were chasing each other around a rock. Beneath the rock lay Mother Minnow.

"Be careful, Johnny Minnow! Don't go near the surface!" warned watchful Mother Minnow. Johnny carelessly flitted his tail and went on with his play. He had heard that warning so often it didn't sink very deep in his head.

Minnie made a sudden rush at Johnny. To dodge her he flashed upward. He forgot his mother's warning. He thought only of his play.

King Fisher's sharp eyes were on Johnny Minnow. He saw that flash upward. And as Johnny flashed upward King Fisher closed his wings and dashed downward.

Splash! King Fisher hit the water and dove beneath. Then suddenly Johnny Minnow saw his danger. He whisked about to flee. But he was too late. King Fisher's sharp bill caught him and that was the end of Johnny Minnow's play.

King Fisher rose from the water almost instantly.

most as quickly as he went under. In his bill thrashed Johnny Minnow. King Fisher perched in a dead tree and called Johnny Minnow down.

"There, you see how easy it is," said King Fisher. "Now every one pick out a fish and catch it."

The birds, seeing how much King Fisher was enjoying his fish lunch, poised over the river with eager eyes. Each picked out a minnow and kept watch on it.

The turtle came sliding back. The minnows darted upward to get away from him. "Now is your chance," ratted King Fisher to the birds. Down they dove, Janet among them.

Splash! They hit the water. Then splashity-splash! Gurgle-gurgle! they went under. The water gave the birds a shock. It blinded their eyes; it filled their mouths. They forgot the fish. They thought only one thing right then—to save themselves from drowning. They waded to the surface and maddly beat their wings. Some rose into the air, others fluttered along the top of the water.

Janet dove with the rest. Just before she hit the water she remembered a warning given by a diving teacher: "Always close your eyes when going into the water; open them after you are under. Keep your mouth shut."

So Janet's eyes were closed as she dove; she opened them to find herself speeding toward the river bottom. A minnow darted in front of her. She could have caught it. But right then her one thought was to come up. She let the minnow flash safely away. She saw before her what looked like a rope. She grabbed it. Then exciting things began to happen, all in an instant.

FUNNIER THAN EVER As it determined to make humanity forget the approach of summer holidays, the family characters of the six pages of comics are funnier than ever in next Sunday's Prince Edition. "Make it a Habit!"—Ad.

Tomatoes and Lettuce are plentiful Season, and cover with Blue Ribbon Mayonnaise Four sizes, 12c, 30c, 50c, 95c



MARKET STREET BEEF CO. Eat Spring Lamb and Milk-Fed Veal This Week

Legs of Milk-Fed Veal 4-lb. Average 15c Rumps of Milk-Fed Veal 6-lb. Average 15c Shoulders Milk-Fed Veal 6 to 8 lb. Average 15c Shoulders Spring Lamb 3-lb. Average 15c

Lean Picnic Shoulders, 15c lb. Fresh Selected Eggs in Cartons... 25c doz. Legs of Baby Spring Lamb... 25c lb. Loin Spring Lamb Chops... 25c lb. Sugar-Cured Smoked Beef Tongues... 25c lb.

Bacon, by the pound or strip... 20c lb. Oleo or Nut Margarine... 3 lbs. for 50c Rack of Spring Lamb Chops... 3 lbs. for 25c Breast of Spring Lamb for Stewing... 3 lbs. for 10c

These Prices for Today, Friday & Saturday MARKET STREET BEEF CO. 5221-23-25 Market St. 5939 Market St.

Radio-Phone Equipment and Supplies Send for free catalogue of hook-ups Roberts Bros. Electric Co. 426 South 52d Street PHILA., PA.

"RADIO PHONE RECEIVING" A Practical Book for Everybody On Sale at All Radio Stores Sayre-Level Radio Co. Philadelphia, Pa.

From the recipes sent us by thousands of women we have selected a number of unusual ones for the 12th Edition of this little brochure.

Set a hat upon a tumbler, and a coin upon the hat, as shown in the above diagram. The trick is to knock the hat from the tumbler, and have the coin fall into the glass. This the performer does successfully, but no one else can duplicate the feat.

To do the trick, pretend that you are going to hit the hat on the outside, but when you do strike it, hit inside the brim. The eye cannot follow the swift movement, and the spectators will therefore fail when they try the trick, as they will hit the hat from the outside.

No. 193—Tumbler, Hat and Coin.

After-Dinner Tricks

M. & H. Sell It For Less

Made Dishes SALADS and SAVORIES FRENCH'S MUSTARD

When you buy a jar of French's at any good grocery store you'll find, in the carton, an interesting brochure on the uses of this blended mustard in foods as well as on foods

FRENCH'S Cream Salad Mustard

The brochure, bottle and paddle come in a carton for protection. Look for it on your grocer's shelves.

Made only by The F. French Company, Rochester, N. Y. Philadelphia office at 213 S. Front Street

AMERICAN STORES CO. AMERICAN

Fresh from the Roasters "Nearness to the roaster" means something in buying coffee, for coffee always tends to lose its aroma if left on a store shelf for any length of time before it is sold.

ASCO Evaporated Milk tall can 9c; morning dew. ASCO Sliced Bacon cut to 15c pkg. Gorton's Codfish Cakes can 12 1/2c. From Father Neptune's Cupboard Best Pink Salmon tall can 12c. Red Alaska Salmon can 25c. Gorton's Flaked Fish can 14c. Calif. Tuna Fish can 10c. 15c. Gold Label Sardines can 6c. 7c. Imported Smoked Sardines can 15c. Calif. Soused Sardines lb can 12 1/2c. Fancy Shrimp can 15c. Fancy Norway Mackerel each 5c. 7c. 15c.

Cleaning Helps Dust Brushes each 18c. 32c. Stove Brushes each 20c. Scrub Brushes each 5c. Swift's Snap Soap 10 cakes for 23c. P. & G. Naphtha Soap cake 5c. Star Soap cake 5c. Star Naphtha Powder 14-oz pkg 3c. Galvanized Buckets each 21c.

Palmolive Soap 3 cakes for 20c. A very special price on this well-known brand of toilet soap. You'll save money by buying ahead at this low price.

Fresh Country Eggs doz 28c. Twelve good ones in every dozen. Gold Seal Eggs carton of twelve 33c. Specially selected for their size and weight.

Asco Pork & Beans 9c can. Selected beans cooked with a piece of pork and packed with a delicious tomato sauce dressing.

A Few Suggestions Asco Apple Cider Vinegar bot 16c. Asco White Distilled Vinegar bot 12c. Princess Salad Dressing bot 21c. Stohrer's India Relish bot 15c. Pure Vanilla Extract bot 12c. 22c. Temtor Strawberry Preserves jar 20c. Apple Sauce can 15c. Harvest Apple Butter can 15c. Pure Jellies glass 10c. Asco Cream Mints bot 15c. Delicious Lolly Pops each 1c. Franco-American Spaghetti can 10c.

For Iced Tea be sure to use Asco Orange Pekoe or India Ceylon. Three other delectable blends—Old Country Style, Plain Black and Mixed. ASCO Teas 1/4-lb pkg 12c. 1/2-lb pkg 23c; 1-lb pkg 45c.

Cakes and Desserts N. Social Teas lb 27c. B. Coconut Taffy Bars lb 21c. Asco Cornstarch pkg 7c. Asco Jelly Powder pkg 9c. Whole Grain Blue Rose Rice lb pkg 9c. Pudding pkg 9c. Mrs. Morrison's Puddings pkg 10c.

Meat Specials in Our Sanitary Meat Markets GENUINE MARYLAND SPRING LAMB Breast lb 12c. Shoulders lb 25c. Rib Chops lb 38c. Legs of Lamb lb 38c. Neck lb 15c. Rack lb 22c. Loin Chops lb 45c. Finest Soft Meated Chickens lb 35c. City Dressed Milk-Fed Country Veal Breast lb 12 1/2c. Shoulders lb 18c. Loin Chops lb 35c. Rib Chops lb 28c. Neck lb 15c. Rack lb 24c. Rump Roast lb 25c. Loin Roast lb 32c.

Advertisement for M. & H. Radio Dept. featuring various radio sets and accessories. Includes prices for Westinghouse sets, batteries, and amplifiers.

Advertisement for French's Cream Salad Mustard, highlighting its use in various dishes and providing contact information for the manufacturer.

Large advertisement for American Stores Co. featuring a wide variety of grocery items, including coffee, milk, bacon, eggs, and canned goods, with prices and promotional offers.